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Changes in U.S. Tariffs: The Role of Import Prices and Commercial Policies

By DOUGLAS A. IRWIN*

For nearly a century after the Civil War, the height of U.S. import tariffs and the method of taxing imports were sharply disputed partisan issues: Republicans favored high, protective tariffs using specific duties, while Democrats favored moderate, revenue tariffs using ad valorem duties.[1] In fashioning most of the tariff legislation during this period, Republicans ensured that about two-thirds of dutiable imports were subject to specific duties. The ad valorem equivalent of specific duties is, of course, inversely related to import prices; higher import prices will reduce (and lower import prices will increase) the effective tariff on goods subject to these duties. Research by Robert A. McGuire (1990) on the immediate post-Civil War period, Mario J. Crucini (1994) on the interwar period, and T. Norman Van Cott and Larry J. Wipf (1983) on the early 1970's has shown that, due to the use of specific duties, import price fluctuations often have been responsible for significant changes in the average tariff.

This paper contributes to this literature by (i) disentangling the degree to which changes in import prices and in tariff rates (enacted by Congress or resulting from trade negotiations) have been responsible for tariff movements over a longer sample period (1865–1967), and (ii) providing some insight into the political process that brought about legislated changes in tariff rates and influenced the choice of specific versus ad valorem duties.

Section I discusses general issues relating to tariff measurement and the role of (and rationale for) specific duties in the U.S. tariff code. Section II develops an econometric model of the determinants of the average ad valorem tariff rate from 1865–1967 and uses the estimated parameters to distinguish the effects of import prices and commercial policies on the tariff. Section III considers whether congressional tariff legislation was enacted in response to price-induced tariff movements, and concludes that such legislation more frequently resulted from a switch in the partisan control of government rather than a desire to offset price movements. The section also focuses on the surprising finding that about three-quarters of the tariff's decline after the Smoot-Hawley Act of 1930 can be attributed to higher import prices and only about a quarter due to cuts in tariff rates as a result of negotiations under the Reciprocal Trade Agreements Act (RTAA) of 1934 and the General Agreement on Tariffs and Trade (GATT) of 1947. Section IV summarizes the principal findings and implications of the paper.

I. Tariff Measurement and Specific Duties

The most frequently used measure of the average ad valorem tariff rate is the ratio of total revenue from import duties to the value of dutiable imports. Figure 1 presents these data for the United States from 1865–1967.[2] This readily available series is usually interpreted as reflecting the average height of the tariff and thus the stance of a country's commercial policy. The high-tariff period from 1865–1912,

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[1] Ad valorem duties are assessed as a percentage of the value of imports whereas specific duties are a nominal dollar amount per imported quantity.

[2] Source: series U 212 in the U.S. Bureau of the Census (1975). The denominator of this tariff measure is usually dutiable rather than total imports because often there is no comparable domestic production of the imported goods that receive duty-free treatment. These imports are excluded to indicate more accurately the average tariff protection provided to import-competing domestic producers.

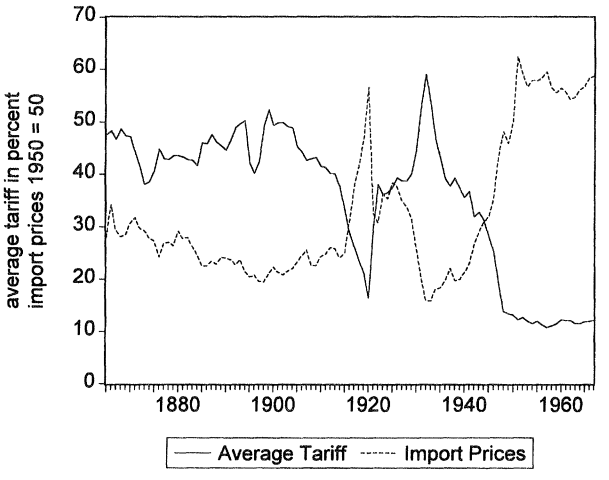

FIGURE 1. AVERAGE TARIFF AND IMPORT PRICES, 1865–1967

for example, is said to reflect the political dominance of protectionist Republicans. The brief period of liberalization under the Democrats around World War I was followed by a return to protection in which the Republican Fordney-McCumber and Smoot-Hawley tariffs of 1922 and 1930 pushed the average tariff to over 50 percent. Successive trade negotiations after 1934 under the RTAA and the GATT, it is believed, then brought the tariff down to about 10 percent.

This measure of the "average" tariff has several shortcomings. It is a downward-biased indicator of tariffs: imports subject to high or prohibitive tariffs receive little or no weight in the index.[3] Over periods in which tariff rates are adjusted, the changing composition of imports introduces further bias, although perhaps not so extensive as to make the tariff revenue measure completely unreliable. E. Lerdau (1957) calculated an average U.S. tariff index annually from 1909–1946 using a constant set of weights from the wholesale price index. He reported a correlation of 0.88 (which I confirmed) between his index and tariff revenue as a share of dutiable imports. This correlation, he concludes (p. 239),

> in view of the absence of a significant trend and in view of the considerable amplitude of the fluctuations, must be considered surprisingly high. The use of this cruder index as an indication of changes in the tariff over time is therefore far less suspect than it would appear to be on purely theoretical grounds.[4]

Another feature of this measure of the average ad valorem tariff is that it moves, sometimes substantially, during periods in which there are no changes in the actual tariff rates. This is a problem if the aim of using the average tariff measure is to identify the effects of commercial policy, meaning changes in the rates of import duty as a result of legislative or executive action. Lerdau's findings suggest that this volatility is not due to the changing composition of imports, but could reflect the impact of import prices on the ad valorem equivalent of the specific duties in the tariff code.

[3] See, however, the recent approach proposed by James E. Anderson and J. Peter Neary (1994).

[4] Fixed-weight indicators of tariff changes yield results that are often slightly higher than those evident from the tariff revenue measure. For the Smoot-Hawley tariff of 1930, for example, a fixed-weight calculation by the U.S. Tariff Commission suggests an average tariff increase of 22.7 percent. By contrast, the tariff revenue measure increased 17.4 percent between the second halves of 1929 and 1930, while Lerdau's index rose 21.0 percent between 1929 and 1931. See Irwin (1998a).

That fluctuations in import prices are a plausible source of variation in the average tariff is also illustrated in Figure 1, which includes an index of U.S. import prices.[5] Large changes in import prices are inversely related to major swings in the tariff. The substantial increase in import prices during World War I and during and just after World War II coincides with dramatic reductions in the average tariff, for instance, while plunging import prices in the early 1920's and again in the early 1930's are associated with sizeable increases in the tariff. Indeed, the correlation between the two series is −0.93.

Is the highly negative correlation between the average tariff and import prices explained by the use of specific duties? Although data on the importance of specific duties in the U.S. tariff code are difficult to come by, Table 1 presents some limited information compiled from various sources. The table indicates that, from the late 1860's until the 1950's, roughly two-thirds of dutiable U.S. imports were subject to specific or compound duties (with compound duties usually constituting less than 5 percent of dutiable imports). This proportion fell to half by the mid-1960's and to less than 40 percent by the early 1970's.[6]

What explains the heavy reliance on specific duties?[7] For much of this period the political parties differed not only as to the proper height of the tariff, but also in their preference for specific and ad valorem duties. From the Morrill Act of 1861, Republicans ensured that most import duties were specific, not ad valorem. The Democrats incorporated more ad valorem rates into the Wilson-Gorman tariff of 1894, but Republicans promptly reversed this three years later. Democrats again included more ad valorem duties in the Underwood tariff of 1913 (see Table 1), but the Republican Fordney-McCumber tariff of 1922 restored the extensive use of specific duties. These specific duties were locked into the tariff code by the Smoot-Hawley tariff of 1930, the last general tariff passed by Congress. This act fixed specific duties at nominal amounts circa 1930, and hence their ad valorem equivalent was ripe for increase through deflation or erosion through inflation in subsequent years.

What issues were involved in the debate over the merits of specific and ad valorem duties? According to the Republicans, the main rationale for specific duties was their administrative simplicity, that such duties avoided the tricky issue of valuing imports and thereby prevented underinvoicing fraud. Republicans argued that ad valorem duties gave an incentive to importers to underinvoice: "Inasmuch as the duty depends on the price, a cheat on the price is a cheat on the duty." (U.S. Congress, 1913 p. lvii.) This, they complained, undermined the protective character of the tariff and harmed honest importers. Democrats pointed out that specific duties too could be subject to evasion and proposed coupling ad valorem duties with strong enforcement measures.[8] The main Democratic argument against specific duties was equity: that fixed nominal duties placed a heavier burden on lower-priced items in any given tariff category and therefore constituted a regressive tax on consumers.[9] A specific duty also lacks transparency (its ad valorem equivalent cannot be easily determined) and "strongly tends to mask the real character and burden of the tariff, and thereby to keep the consumer who pays the cost in

[5] Sources: 1865–1878, from Matthew Simon (1960 p. 652); 1879–1967, from series U 238 in the U.S. Bureau of the Census (1975).

[6] Frieder Roessler (1977) reports that 34 percent of the lines in the U.S. tariff code had specific duties in 1973. The Tokyo Round of multilateral trade negotiations, concluded in 1979, converted many specific duties to ad valorem duties in the U.S. tariff code.

[7] The following paragraphs draw on U.S. Congress (1909, 1913) (a compilation of numerous congressional committee reports on tariff legislation during the late nineteenth century) and Frank W. Taussig (1931).

[8] Specific duties require more tariff classifications and "permit slight changes in industrial processes made for the purpose of shifting goods from one classification into another, and thereby avoid the necessity of paying a higher rate of duty." (U.S. Congress, 1913 p. xxxii.)

[9] "A duty which taxes according to kind, pound, weight, measure, or the like, without regard to value, always oppressed the less wealthy consumer and lightens the burden on his richer fellow-citizen." Republicans did not dispute that specific duties were regressive, but saw a silver lining in their "beneficial tendency to exclude from the country inferior, adulterated, and worthless goods." (U.S. Congress, 1909 pp. 54, 292.)

TABLE 1—SPECIFIC DUTIES AND U.S. IMPORTS

Year	Share of dutiable imports subject to specific or compound duty	Share of tariff revenue from specific and compound duties	Equivalent ad valorem rate of specific duties	Average ad valorem rate on dutiable imports	Source
1867	55.5	58.0	N.A.	46.7	McGuire (1990 p. 635)
1876	63.4	46.3	N.A.	44.8	*Ibid.*
1913	63.3	42.8	23.5	40.1	USTC (1924 p. 14)
1914	42.2	51.8	43.1	37.6	*Ibid.*
1920	69.0	45.7	10.5	16.4	*Ibid.*
1925	64.9	64.8	35.8	37.6	USTC (1927)
1939	67	N.A.	N.A.	37.3	Edward Dana Durand (1964 p. 14)
1951	75	N.A.	N.A.	12.3	*Ibid.*
1964	52.2	N.A.	N.A.	11.6	USTC (1966)
1972	37.0	26.1	5.9	8.6	Van Cott and Wipf (1983 p. 729)

Notes: All figures are in percentages. Data for 1913 are for the fiscal year when the 1909 tariff was in effect. Data for 1914 are for when the Underwood tariff was in effect. Source for column 4 is series U 212 in U.S. Bureau of the Census (1975).

ignorance of his real contributions." (U.S. Congress, 1913 p. xxxii.)

Both parties recognized that the ad valorem equivalent of specific duties was inversely related to import prices, but thought this a secondary consideration to judge from the congressional committee reports on the various tariff bills. Republicans liked the protective insurance provided by specific duties against low prices. "When business is depressed and foreign prices abnormally low, when foreign competition is most to be dreaded, and when a defensive barrier is most needed by domestic producers, then ad valorem rates are lowest, production is reduced, and depression intensified." (U.S. Congress, 1909 p. 52.) Democrats saw an "injustice" in this feature of a specific duty, in that it "fails to take account of fluctuations in value, and it therefore imposes a relatively low rate when prices are high and a relative high rate when prices are low, notwithstanding the undesirability of such a method." (U.S. Congress, 1913 p. xxxii.)

The Republicans ensured that specific duties loomed large in the U.S. tariff code because their electoral successes gave them the most opportunities to pass tariff legislation during this period.[10] While the true motivation for the Republican preference for specific duties perhaps cannot be determined from public statements alone, one can infer that, as the party unequivocally supported protective tariffs for most of the post-Civil War period, specific duties were a means to this end.

II. Estimating the Effects of Prices and Policies on the Tariff

This section aims to determine the extent to which the changes in the average U.S. tariff depicted in Figure 1 are due to import price movements or to changes in rates of import duty.

To motivate the issue conceptually, suppose there are two classes of imports, M_1 subject to

[10] Tariff legislation was only enacted when the same party was in control of the House of Representatives, the Senate, and the presidency. Of the 33 Congresses between 1865 and 1931, 22 were under unified government, 18 of which were Republican.

ad valorem duties and M_2 subject to specific duties (and their associated prices, p_1 and p_2). The average ad valorem tariff rate T is then defined as $(tp_1M_1 + sM_2)/pM$, or $(1 - \alpha)t + \alpha s/p_2$, where t is the ad valorem tariff rate, s is the specific duty, α is the weight of imports (by value) subject to specific duties, and pM is the total value of (dutiable) imports. If all imports are subject to just ad valorem duties ($\alpha = 0$), then clearly a change in import prices will not affect the average tariff (i.e., $\partial T/\partial p = 0$). If all imports are subject to just specific duties ($\alpha = 1$), then $\partial T/\partial p = -s/p^2 < 0$. When imports are subject to a combination of duties, and assuming for simplicity that p_1 and p_2 are perfectly correlated and p is the overall import price index, the implied elasticity of the average tariff rate with respect to import prices is calculated as $(\partial T/T)/(\partial p/p) = -\alpha(s/p)/T$. This indicates that if $s/p \approx T$, then $(\partial T/T)/(\partial p/p) \approx -\alpha$, in which case the elasticity is about -0.60 to -0.65 to judge from Table 1.[11]

To separate out the effects of import prices and commercial policies on the average tariff, the econometric approach proposed here is to estimate the following equation:

$$T_t = \beta_0 + \beta_1 \ln(p_t) + \Sigma \beta_j D_{jt} + u_t,$$

where the $\beta_j D_j$'s are dummy variables representing different periods of tariff legislation. This semilog specification allows the elasticity of the tariff with respect to price to be easily determined by dividing β_1 by the mean of T. This specification also preserves an easy interpretation of the coefficients on the dummy variables in terms of their impact of the average tariff level.

The problem with this specification is that import prices enter directly into the calculation of T_t and therefore p_t and u_t may be negatively correlated. While this works to reduce β_1, thereby understating the role of prices, it can be corrected by using an appropriate instrument for p_t. Potential instruments should be correlated with import prices but orthogonal to tariff shocks (the error term) and will be discussed further below.

Table 2 presents econometric results from various regressions in which the dependent variable is always the average ad valorem tariff (in percentage terms). The sample consists of 103 annual observations covering the years 1865–1967.[12] There are 12 dummy variables representing administrative changes in tariff rates. The first ten variables are acts of congressional legislation in which rates of import duty in the tariff code were changed. These span the (unnamed) Tariff Act of 1872 to the Smoot-Hawley tariff of 1930, the last time Congress directly changed the schedule of import duties. The last two dummy variables represent rate reductions resulting from executive agreements with foreign countries: the Reciprocal Trade Agreements Act (RTAA) of 1934 (considered here to be effective from 1936), and the first negotiating round of the General Agreement on Tariffs and Trade (the GATT, effective from 1948).[13]

In the first regression [column (1)] of Table 2, the dummy variables representing tariff legislation and negotiated trade agreements are taken to be the only factors determining the average tariff. The coefficients indicate the deviation of the average tariff during a given period from the regression intercept (representing the undummied period

[11] In general, the elasticity varies with s/p, the ad valorem equivalent of specific duties, and T, the average tariff. U.S. Tariff Commission estimates of s/p for select years during 1913–1925 (from Table 1, in percentages) range from a high of 43.06 in 1914 to a low of 10.45 in 1920. Approximating α as 0.65 and taking the mean value of T (from 1865–1967, multiplied by 100) as 35 suggests, the elasticity of the average tariff rate with respect to import prices would be about -0.48 if $s/p = 25$, -0.67 if $s/p = 35$, and -0.86 if $s/p = 45$.

[12] The sample ends just before the Kennedy Round tariff reductions were to be implemented. After 1967, import prices explode while the average tariff declines only modestly. The dilution of the previous relationship between import prices and the average tariff may be due to the increasing divergence of s/p and T. Van Cott and Wipf (1983) examine this period in detail.

[13] While the RTAA involved bilateral negotiations with numerous countries over several years, the most important tariff reductions were implemented in 1936–1938, with few negotiations thereafter. Similarly, although four GATT negotiating rounds were held between the first at Geneva in 1947 and the Kennedy Round (concluded in 1967), they were held mainly to add new members and resulted in negligible reductions in U.S. tariffs.

TABLE 2—DETERMINANTS OF THE AVERAGE AD VALOREM U.S. TARIFF RATE, 1865–1967

	(1) OLS	(2) OLS	(3) IV	(4) First difference
Constant	47.03	130.17	136.29	—
	(0.56)	(5.85)	(5.60)	
Log of import price	—	−21.13	−22.69	−18.18
		(1.51)	(1.43)	(3.75)
Act of 1872	−8.95	−9.99	−10.08	−7.40
	(0.69)	(0.82)	(0.86)	(0.31)
Act of 1875	−4.01	−6.22	−6.39	−5.73
	(0.69)	(0.82)	(0.86)	(0.37)
Act of 1883	−2.04	−6.95	−7.31	−6.96
	(0.89)	(0.88)	(0.91)	(0.54)
McKinley (1890)	2.17	−3.12	−3.51	−5.32
	(1.29)	(1.34)	(1.36)	(0.57)
Wilson-Gorman (1894)	−5.21	−13.57	−14.19	−15.53
	(1.41)	(1.54)	(1.51)	(5.97)
Dingley (1897)	0.45	−6.03	−6.56	−7.68
	(1.12)	(1.02)	(1.02)	(7.36)
Payne-Aldrich (1909)	−5.65	−9.81	−10.12	−7.78
	(0.85)	(0.81)	(0.84)	(7.34)
Underwood (1913)	−20.37	−16.73	−16.47	−12.24
	(2.67)	(1.04)	(1.03)	(7.39)
Fordney-McCumber (1922)	−9.16	−6.11	−5.89	−1.61
	(0.76)	(1.01)	(1.04)	(8.67)
Smoot-Hawley (1930)	8.29	−3.76	−4.64	3.38
	(1.59)	(1.62)	(1.68)	(9.52)
RTAA (1936)	−13.26	−16.91	−17.18	−4.56
	(1.90)	(0.88)	(0.86)	(9.34)
GATT (1948)	−35.97	−21.87	−20.91	−8.21
	(0.58)	(1.31)	(1.30)	(9.21)
Adjusted R^2	0.93	0.99	0.99	0.68
DW	0.88	1.38	1.39	2.23

Notes: Number of observations = 103. Dependent variable: tariff revenue/dutiable imports × 100. The mean of the dependent variable is 35.54. Standard errors (corrected for heterskedasticity) in parenthesis.

of 1865–1871). For example, when the McKinley tariff was in effect from 1890–1893, the average tariff was about 49.2 percent ($\beta_0 + \beta_{MK}$). The Democratic Wilson-Gorman tariff (in effect from 1894–1896) reduced the tariff about 7.5 percentage points ($\beta_{WG} - \beta_{MK}$) to 41.7 percent ($\beta_0 + \beta_{WG}$), although the Republicans promptly reversed most of this reduction with the Dingley tariff (1897–1908). The Underwood tariff (1913–1921) pushed the average tariff down to about 27 percent, a dramatic 15-percentage-point drop from the Payne-Aldrich tariff (1909–1912), or a 20-percentage-point drop from the Dingley tariff. According to these results, the Fordney-McCumber tariff raised duties about 11 percentage points while Smoot-Hawley added another 17 percentage points, pushing the tariff up to an average 55 percent. The RTAA brought about a 22-

percentage-point tariff reduction (to 33 percent) and the GATT added another 22-percentage-point reduction (to 11 percent).

In ascribing all changes in the average tariff to rate changes and none to import price fluctuations, this regression attributes too much to these commercial policies. The column (2) regression introduces import prices. The coefficient on the log of import prices is negative, reflecting the inverse relationship between import prices and the ad valorem equivalent of specific duties, and is highly significant with a t-statistic of over ten. The addition of import prices boosts the explained variation of tariffs (adjusted R^2) from 0.93 to 0.99 as prices account for important fluctuations in the tariff that the commercial policy variables could not. The coefficient on import prices implies an elasticity of the average tariff with respect to import prices of -0.60, within the expected range calculated above.

As previously noted, import prices may be correlated with the error term, biasing β_1 downward and thereby understating the role of prices. An appropriate instrument would be correlated with import prices but not with shocks to the tariff. The regression in column (3) uses U.S. wholesale prices as an instrument for import prices.[14] Instrumental variables estimation raises the coefficient on prices by about 6–7 percent to an implied elasticity of -0.64.[15] This elasticity indicates that a 10-percent increase in import prices will reduce the average tariff by 6.4 percent. There are indications of autocorrelation, and while this does not introduce bias it results in less efficient estimates. The results from a first-difference specification (instrumenting again for import prices) are reported in column (4) and yield -0.51 as the implied elasticity.

The addition of import prices mutes the magnitude of the coefficients on the commercial policy variables as those prices account for tariff movements that were previously attributed to changes in tariff rates. (Introducing prices also means that the coefficients cannot be easily interpreted in terms of the level of the tariff, but the difference between them can be interpreted as the percentage-point change in the tariff.) For example, the coefficient on the Underwood Act is -16.5 in column (3) [rather than -20.4 in column (1)], implying just a 6.4-percentage-point tariff reduction from the Payne-Aldrich Act, much smaller than the 15 points estimated without import prices. Without controlling for import prices, the Fordney-McCumber and Smoot-Hawley tariffs appear to add a combined 28.7 percentage points to the average tariff. After controlling for import prices, their combined impact shrinks to 11.8 percentage points. Similarly, the coefficient on the GATT falls from -36.0 to -20.9, suggesting a modest 3.7-percentage-point reduction in tariffs rather than the 22-point reduction mentioned earlier.

Thus, official changes in tariff rates may be less important than previously thought because the elasticity of the average tariff with respect to import prices is so large that even modest price fluctuations can produce sizeable changes in the tariff.

III. Assessing the Role of Prices and Policies

These results raise questions about two important issues. The first concerns the political behavior that underlies Congress's setting of the tariff during the period in the sample (1865–1934) when it directly controlled the tariff. Even if import price fluctuations were responsible for significant variation in the tariff, Congress need not have been passive to these price-induced tariff movements. Rather, the timing and magnitude of tariff legislation might have been dependent upon them. If import price inflation significantly reduced the average tariff, for example, Congress could (if it so chose) simply offset this erosion by legislating a tariff increase. The second concerns the implication that import price inflation was overwhelmingly the source of lower tariffs after the Smoot-Hawley Act of 1930. This finding runs counter to the standard view that successive international negotiations under the RTAA and the GATT were primarily responsible for the U.S. move toward freer trade. Do

[14] Source: 1865–1889, series E 52 in U.S. Bureau of the Census (1975); 1890–1967 series E 23 in U.S. Bureau of the Census (1975).

[15] If the log of the money stock $M2$ is used, the implied elasticity is -0.63. Source: series X 415 in U.S. Bureau of the Census (1975).

the findings in this paper conform with the evidence on the degree of tariff cutting brought about by these negotiations? These issues will be dealt with in turn.

A. *Congressionally Set Tariff Rates, 1865–1934*

At the point at which it passes new tariff legislation, Congress has complete discretion in setting tariff rates. It therefore seems reasonable to assume that Congress's "revealed preferred" tariff is the realized tariff rate immediately following the enactment of a new tariff schedule.[16] This assumption is suggestive of a specific form of legislative behavior and implies that the appropriate decomposition of the influence of prices and policies on the tariff is to determine the impact of prices in between acts of tariff legislation.

Suppose Congress enacts its preferred ad valorem-equivalent average tariff, T_0. Over time, the actual tariff could drift away from Congress's preferred tariff to some new rate, T_1, because of import price movements. If Congress disapproved of the price-induced change in the tariff, or if new information or a political change in Congress led it to prefer a different tariff rate, it could simply enact a new tariff, T_2, which need not be the same as T_0. From 1865 to 1934, Congress enacted major tariff revisions about every seven years, on average. This implies either that the deviation of the actual tariff from its preferred tariff was never very large or that Congress found it costly to adjust the tariff frequently.

In this setting, the change in Congress's preferred (that is, enacted) tariff is $T_2 - T_0$, but the change in the tariff as a result of congressional legislation is $T_2 - T_1$. Therefore, the change in Congress's preferred tariff ($T_2 - T_0$) can be decomposed into the legislative component ($T_2 - T_1$) and the change brought about by price movements ($T_1 - T_0$). If, for example, import price inflation reduces the average tariff by 5 percentage points and Congress then enacts legislation raising the average tariff by 5 percentage points, the legislation has simply offset the price-induced drift in the tariff and there is no change in Congress's preferred tariff because $T_0 = T_2$. Alternatively, if deflation raises the average tariff and Congress then enacts an additional tariff increase, the preferred tariff has increased.[17]

Table 3 presents this decomposition for nine legislative tariff rate changes, from the first post-Civil War tariff act in 1872 up to Smoot-Hawley in 1930, the last time Congress set tariff rates. There are few instances in which the legislative component and the price component carry the opposite sign, which would have implied that the legislation was offsetting price-induced tariff movements. A Republican Congress in 1875 did enact a 4.2-percentage-point increase in the tariff that more than offset an inflation-induced 0.9-percentage-point decline in the tariff, thereby boosting the revealed preferred tariff by about 3 percentage points. But a closer look at all other legislative acts suggests that factors other than price-induced tariff movements are motivating the decision to pass tariff legislation.

A necessary condition for the passage of tariff legislation during this period is a unified government, in which the same political party controls the House of Representatives, the Senate, and the presidency. (A politically divided government apparently involves sufficiently high transactions costs as to impede the enactment of a new tariff.) Any election that changed the party control of Congress and the executive and created a unified government also gave rise to tariff legislation because the political parties differed in the height of their

[16] As part of the tariff legislation process, Congress often calculated the effect of proposed revisions on the average tariff using a previous year's imports as a base. These calculated tariffs tend to be very close to the realized tariff in the year after the legislation has been implemented.

[17] The underlying determinants of Congress's preferred tariff are taken as exogenous here because the focus is simply on the contribution of prices and policies to actual tariff changes. Other political economy models of the tariff (surveyed in Dani Rodrik, 1995) seek to explain shifts in the preferred tariff over time. This decomposition also ignores any expectation by Congress about the future path of prices. For most of the period at issue here, the United States was on the gold standard and Congress is simply taken to assume that the price level is, on average, constant.

TABLE 3—DECOMPOSITION OF TARIFF CHANGES, 1872–1930

Year	Government	Enacted tariff	Change in revealed preferred tariff	Legislation component	Price component
1872	R	41.5	—	—	—
1875	R	44.8	+3.3	+4.2	−0.9
1883	R	41.7	−3.1	−0.9	−2.2
1890	R	46.5	+4.8	+1.9	+2.9
1894	D	42.2	−4.3	−8.1	+3.8
1897	R	49.2	+7.0	+6.8	+0.2
1909	R	41.6	−7.6	−1.6	−6.0
1913	D	33.5	−8.1	−4.1	−4.0
1922	R	38.1	+4.6	+8.6	−4.0
1930	R	47.7	+9.6	+6.0	+3.6

Notes: Government: R = Republicans, D = Democrats. The change in revealed preferred tariff is the percentage-point change in the tariff rates enacted by Congress. The legislated component is the percentage-point change in the tariff at the time of the new act. The price component is the difference between the previously enacted tariff and the actual tariff just prior to the imposition of a new tariff. See the text for details.

preferred tariff: during 1865–1934, the mean tariff under unified Republican governments was 43.5 percent (standard deviation of 4.9), while the mean tariff under unified Democratic governments was 36.2 percent (standard deviation of 10.1). In four of the nine tariff changes (1894, 1897, 1913, 1922), Congress changed its preferred tariff as a result of a switch in the partisan control of government. While in two of these instances (1894, 1922) the legislative and price components are of the opposite sign, the legislative component is more than twice as large, implying that the main motivation for the legislation was to change the tariff enacted by the other political party.

In the other five of the nine legislative tariff changes (1875, 1883, 1890, 1909, 1930), Republicans adjusted their own previously enacted tariff. With the exception of 1875, they did so, not by offsetting price-induced tariff movements (such as raising rates when import price inflation had eroded the tariff), but by establishing a new preferred tariff by adjusting it in the same direction as the price-induced movement. These price movements assisted Republicans in putting the tariff where they apparently desired it to go anyway, meaning that the legislative change was smaller than otherwise would have been necessary to hit a particular target for the enacted tariff. Here there was no conflict between where import prices were pushing the tariff and where Congress subsequently chose to set the tariff, implying again that the main motivation for the legislation was a desire to enact a new preferred tariff, not offset price movements.

Thus, the legislative changes in tariff rates do not appear to have been designed to offset exogenous price-induced movements in the tariff. Any election that changed the partisan control of government and created a unified government led to new tariff legislation, and when the Republicans chose to alter their own previously enacted tariff they generally reinforced price-induced changes to the tariff rather than offset them.[18]

[18] Aggregate economic factors, such as changes in real output (at various lags), do not appear to have been an

B. *Negotiated Tariff Rates, 1934–1967*

With the passage of the Reciprocal Trade Agreements Act (RTAA) in 1934, Congress fundamentally changed the process of U.S. tariff-making by delegating to the President the authority to reduce tariffs in foreign-trade agreements. This delegation is also thought to have played a role in the subsequent drop in the average U.S. tariff: in the 15 years after the RTAA's passage, the tariff fell from about 50 percent to almost 10 percent. The coefficients from the column (3) regression in Table 2, however, suggest that about two-thirds of the tariff reduction from 1932–1954 (or about 80 percent of the postwar reduction from 1945–1967) can be attributed to higher import prices. This finding runs so counter to the standard view that negotiated tariff reductions under the RTAA and the GATT alone were responsible for this trade liberalization that it deserves further scrutiny. Fortunately, detailed government analysis of the tariff changes during this period provides a benchmark to assess how reasonable this conclusion is.

The U.S. Tariff Commission (USTC) recognized at the time that the erosion of specific duties by inflation during the 1940's had contributed significantly to tariff reduction. In a report published just after the formation of the GATT, the USTC (1948 p. 18) observed that

> prices of import goods have risen greatly during the last two decades, and this fact alone would have cause a marked reduction in the average rate of duties actually collected in recent years compared with earlier years because of the effects of higher prices on the ad valorem equivalents of the specific and compound duties. (Imports subject to such duties together account for about two-thirds of total dutiable imports.)

Regarding the effects of the RTAA, the USTC calculated (reported in Irwin, 1998b) that had the tariff in 1936 (after 13 trade agreements had been signed) been applied to 1934 imports, the average tariff would have declined from 46.7 percent to 40.7 percent, a 12.8-percent drop. Between 1934 and 1939, the actual average tariff declined from 46.7 percent to 37.3 percent, a 20.1-percent drop. Import prices rose 11.1 percent during this period, which—given the elasticity estimate of −0.64—should have reduced the tariff by 7.1 percent, or 3.3 percentage points. If the remaining reduction in the actual tariff is attributed to the trade agreements, it implies a tariff reduction of 14.0 percent, quite close to the USTC's estimate of 12.8 percent. This also implies that just over one-third of the reduction in the tariff during 1934–1939 was due to higher import prices.[19]

The changes in 1947–1948 alone dramatize the impact of higher import prices and lower negotiated duties on the tariff. The USTC (1948 p. 18) calculated that had the tariff cuts from the first GATT round in Geneva (finalized in October 1947, implemented in January 1948) been applied to actual imports in 1947, the average tariff would have declined 21.1 percent, from 19.4 percent to 15.3 percent. This 4.1-percentage-point reduction is close to the GATT regression coefficient that indicates a 3.7-percentage-point reduction. The average tariff in 1948 turned out to be 13.9 percent, however, and higher import prices fully account for the difference. Import prices rose 10.5 percent between 1947 and 1948, which—using the estimated elasticity of −0.64—would have reduced the tariff by 6.7 percent. Applying both the 21.1-percent reduction due to the GATT negotiations and the 6.7-percent

important influence on the timing of congressional tariff legislation. This runs counter to the notion of a "tariff cycle," the negative correlation between the average tariff and the business cycle that is an empirical regularity in the literature on the political economy of trade policy (see, for example, Alok K. Bohara and William H. Kaempfer, 1991). The standard interpretation views the tendency of tariffs to rise when unemployment rises and real GNP and the GNP deflator fall as reflecting the endogenous determination of tariff rates in the political market, where politicians are responding to the pressures of import-competing interests. This correlation is more likely an artifact of specific duties, which automatically gives rise to this phenomena.

[19] While the elasticity is useful in explaining the difference between the calculated and observed tariff change, the coefficient on the RTAA dummy variable implies a 12.6-percentage-point decline in the tariff, much larger than the USTC's 6.0-percentage-point figure. However, the RTAA variable is in effect from 1936–1947, and during this period several other trade agreements (notably with the United Kingdom in 1939) were negotiated.

reduction due to higher import prices to the 19.4-percent tariff in 1947 yields 14.0 percent, just 0.1 percentage points from the actual 13.9 percent. In this one pivotal year, therefore, fully one-third of the U.S. tariff reduction was due to higher import prices.

The USTC (1948 pp. 19–20) also attempted to determine the relative importance of trade agreements and higher import prices in reducing the U.S. tariff from 1930–1933 to 1948:

> Two major factors have been chiefly (if not wholly) responsible for this reduction in the average rate of duty—the trade agreements concessions and the advance in prices of articles subject to specific or compound duties. (Changes in the composition of imports may have affected the averages to some extent, but the direction of the effect is not known.) It is impossible to determine exactly the relative importance of these two main factors, but it seems probable that they have been not far from equal in their effects.

The estimates here confirm the USTC's assessment about the relative impact of trade agreements and higher import prices for the period they considered (1930–1933 to 1948). The coefficients from the column (3) regression in Table 2 imply that the RTAA and GATT (holding import prices constant) would have reduced the tariff by 32 percent between 1931 (close to the average 1930–1933) and 1948, while higher import prices (holding the Smoot-Hawley tariff in place) would have reduced the tariff by 38 percent. Thus, trade agreements contributed almost as much as higher import prices to the tariff reduction from the early 1930's to 1948. The cumulative impact of higher import prices from the early 1930's until the early 1950's, however, dominated the sporadic, negotiated rate reductions in bringing about a lower U.S. tariff.

Because it was widely believed that a return to the early 1930's-style deflation could not be ruled out after the war, Congress and import-competing interests probably did not fully anticipate the inflation-induced reduction in tariffs. The USTC (1948 p. 20) thought it "impossible to forecast, even roughly, the prices of imported goods a few years hence." Yet import prices rose 81.4 percent between 1945 and 1955, most of which occurred in the five years after the end of the war, making the lower tariff a fait accompli by 1950. Yet there is little evidence of congressional concern about the erosion of the specific duties, as might be suggested by proposals to offset the impact of inflation by enacting higher tariffs or to stem its effects by converting specific duties into ad valorem duties. This erosion was permitted to run its course without congressional interference because a bipartisan consensus emerged after World War II in support of presidential authority to negotiate additional tariff reductions.[20]

These findings should modify our view of the mechanism by which the postwar U.S. trade liberalization was achieved. The bulk of the U.S. tariff reduction was brought about not through the arduous task of negotiating rate reductions at the bargaining table, but through the silent and gradual erosion of specific tariffs through inflation. The unanswered question is the degree to which these two methods of achieving lower tariffs were substitutes for one another. Had there been no inflation, would the United States have gotten to the same point by doubling or tripling the size of its tariff reduction in the GATT negotiations? Or were there political constraints on the depth of negotiated tariff cuts so that inflation was an independent catalyst for lower U.S. tariffs?

IV. Conclusions

For most of the century following the Civil War, about two-thirds of dutiable U.S. imports were subject to specific duties, the ad valorem equivalent of which was inversely related to the level of import prices. Specific duties were the choice method of import taxation of the Republicans, whose support for protective tariffs led them to favor such duties for their enforceability, their protective insurance against falling prices, and perhaps for their obfuscation of the actual protection given. Congress retained close control of the tariff prior to 1934, and undesirable price-induced changes in the tariff between legislative acts (frequently the result of a partisan change in government) were not pronounced. After Congress began delegating tariff-negotiating

[20] Irwin and Randall S. Kroszner (1997) link the change in the Republican position on the tariff in the 1940's to an increased sensitivity to export interests, likely the result of the RTAA.

powers to the President in 1934, import price inflation contributed much more to the decline in the tariff than trade agreements.

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